

Preliminary Amendment

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Respectfully submitted,  
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Preliminary Amendment

The paragraph beginning at page 11, line 10, has been amended as follows:

--FIGS. 6A and 6B show retardance vs. position in the spindle of a human metaphase II oocyte, along lines A and B in FIG. 6C.--

Preliminary Amendment

The paragraph beginning at page 7, line 2, has been amended as follows:

--The invention is based, at least in part, on the discovery that [meitotic] meiotic spindles in living mammalian oocytes, in particular living human oocytes, can be imaged non-invasively and without damage. In one embodiment, imaging of oocytes is achieved using an orientation-independent polarized light microscope referred to herein as a "polscope". The polscope uses digital image processing to improve sensitivity, and nearly circularly polarized light combined with electro optical hardware to achieve orientation independence. CCD technology, liquid-crystal compensator optics, and computer algorithms are used to quantify birefringence magnitude (called retardance) and orientation (called azimuth) at every image point in the field of view. The polscope's orientation-independence enables quantification of retardance magnitude and azimuth of spindle fibers within microtubules, because differences in these parameters result from the tissue itself rather than settings of the compensators and stages. The polscope is described in, **e.g.**, U.S. Patent 5,521,705, which is incorporated herein by reference. A method of measuring retardance using this polscope is disclosed in U.S. application serial no. [(attorney's docket no. 34250-36)] 09/883,602 filed on June 18, 2001, also incorporated herein by reference.--

The paragraph beginning at page 11, line 3, has been amended as follows:

--FIGS. [1A] 1C and [1B'] 1D are polscope images of human eggs;--